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POPULISM, POST-TRUTH POLITICS AND THE FAILURE TO DECEIVE THE PUBLIC IN UGANDA'S ENERGY DEBATE

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ABSTRACT

Using populist tactics to frame energy transitions is neither new nor a predominantly Western phenomenon. In sub-Saharan Africa, populist leaders have long dispensed energy endowments for political gains. This paper studies populism and energy in Uganda, a highly energy-deprived country. Fact-checking recent governmental speeches and policies reveals a hefty presence of post-truth politics in Uganda's energy sector. President Yoweri Museveni's attempt to highlight developmental achievements have informed overly optimistic depictions of electricity planning, generation, transmission, distribution and pricing. We argue that the success of post-truth politics as a populist instrument may depend on the public's ability to easily falsify the respective claims. While populist narratives have generally helped to legitimise Museveni's leadership, our novel household survey data suggests that they have failed to mask the observable reality of poor governmental electrification performance. Respondents held sceptical opinions of electrification achievements, infrastructure status and the attribution of high electricity tariffs. Over 80% did not believe in the truthfulness of Uganda's energy debate, a result robust to different age, gender, residential, educational and income levels. This well-informed Ugandan public, paired with a growing international presence and global development goals pose unprecedented pressures on Uganda's government to eventually deliver factual, large-scale electrification.

Keywords: Post-truth politics, energy transition, sub-Saharan Africa, energy poverty

"One can fool some people, or fool all people in some places and times, but one cannot fool all people in all places and times."

Jacques Abbadie, 1684.

1. INTRODUCTION

Populism and post-truth politics have become much-discussed topics since the recent rise of different right-wing parties in Western democracies, the Brexit referendum, and the 2016 US

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election. Yet, populism's meaning remains subject to debate among social scientists. Laclau writes that "'populism' in social analysis has always been ambiguous and vague" ([1] p.xi), pointing to the variety of movements which have been labelled populist. Germani notes that "[p]opulism probably defies any comprehensive definition" ([2] p.88). Enumerating cases previously described as populist, Mény and Surel summarise that "both the concept and the word lost most of their heuristic utility" ([3] p.2). Populism's diverse meanings have driven Weyland to define populism as a political strategy rather than in substantive terms [4]. It is beyond the scope of the paper to resolve this contested debate. However, features that have been attributed to populism and are relevant here, while neither mutually exclusive nor cumulatively exhaustive, include charismatic leadership, a challenge of the establishment, popular support, a polarising and emotional rather than a rational rhetoric, and achieving political goals by tapping feelings of *ressentiment* [5].

While populism often becomes fused with spreading misinformation in popular discourses, the nexus between the two is not clearly defined. McCright and Dunlap present four different archetypes of post-truth propositions, distinguishing between the messenger's ontological position on truth (realism versus constructivism) and rhetorical style/primary audience (informal style directed at people's daily lives versus formal style directed at institutions) [6]. They call the post-truth type which combines a subjective, constructivist understanding of truth with primarily addressing people's daily life 'bullshit' (BS), building on Harry Frankfurt's definition: "The liar cares about the truth and attempts to hide it; the bullshitter doesn't care if what they say is true or false, but rather only cares whether or not their listener is persuaded" ([7], p.51). Laclau writes that "[p]opulism was always a dangerous excess, which puts the clear-cut moulds of a rational community into question" ([1] p.x). Put together, this paper hypothesises that where a populist political leader uses post-truth claims, he or she is most likely to do so in order to secure popular support, which is informed by a highly subjective and constructionist rather than a universalist understanding of truth (where it matters more that the population is deceived than whether a particular statement was true or false).

Discourses on right-wing populism and post-truth politics in Europe and the US have been a dominant factor in political science analyses in recent years. McCright and Dunlap call US President Donald Trump "[p]erhaps the most infamous BSer of our age" ([6], p. 390). However, populism as a political strategy and post-truth politics as an associated instrument have arguably been more endemic in Africa than in the West in the last decades [8]. This paper focuses its analyses of populism on the understudied area of African case examples. Populist

motivations and political manifestations in Africa differ substantially from recent Western cases. Whereas the latter have mainly featured the rise of right-wing movements in Europe and the Trump administration in the US, populism in post-colonial Africa has largely transcended political dispositions, being widely deployed by both socialist and nationalist leaders. An important reason behind this spread is its encompassing political mandate. Contrary to recent right-wing populist waves in Europe and the US, post-colonial African governments have deployed populist strategies to lend popular appeal to their narratives of newly defining national citizenries, nation-states and development, as well as legitimising their political leadership as native representatives of their people.

This paper addresses two main sets of questions to analyse populist dynamics in an African context. First, focusing on discourses on tangible developmental outcomes, it aims to understand whether, how and why post-truth politics are being deployed in a populist setting. It tests which type of misinformation in McCright and Dunlap's terms is most prevalent. Second, this paper explores how the public reacts to post-truth claims and to which extent they manage to dominate public opinions. An in-depth understanding of populism and post-truth politics, their nexus and their public resonance in Africa is desirable for both theoretical and practical reasons. Given the rising salience of populism, Batel and Devine-Wright argue in this special issue that the way how post-truth politics impact public beliefs about energy-related topics remains understudied [9]. They provide survey-based analyses of the forming of European citizen opinions towards energy generation and transmission. This paper complements such Western examples by focusing on developing country cases to provide nuanced picture of populist manifestations, motives and tactics. Under which circumstances post-truth politics are able to markedly influence the public remains unclear and understudied. Practically, understanding populism in Africa provides national and international development stakeholders and investors with valuable insights on recipient country's motivations, and enables them to foresee the socio-political consequences of their engagement. As many developmental projects fail due to an insufficient sensibility towards political issues, such insights are furthermore crucial to adequately design projects before actual implementation.

Electrification specifically presents a promising vehicle to study populism in Africa. It allows the population to directly verify (or falsify) high-level political promises. In contrast to claims about improvements in national economic development, health care or educational quality, households themselves have complete knowledge whether or not they are electrified. As household electrification in Africa has furthermore been argued to be attributable to

governmental action [10], it provides an intriguing direct and observable link between politicians and voters. Several studies have identified strong political links between electrification endowments and political gains by incumbent leaders in Africa (see [11] for an overview). Given the high energy poverty levels and consequential grievances in sub-Saharan Africa, there is thus a strong incentive for African governments to convince the public of their capabilities to provide electricity. Yet, while several high-profile Western cases exist today where right-wing populist parties and post-truth politics challenge energy transitions (see Fraune and Knodt in this special issue [12]), to the best of our knowledge, no study has thus far analysed populism or post-truth politics in the energy sector of a developing country. The social science study of electrification processes in Africa in general has shown to yield valuable insights on the value of energy [13], the design of energy systems [14], as well as the adoption of electricity [15], and should therefore be a crucial element when discussing populist processes relating to energy.

Uganda serves as particularly instructive and representative case to answer our questions. The country's economy and society have been heavily influenced by a period of over three-decades of populist rule by President Yoweri Museveni (see section 2). Despite extensive and repeated governmental promises since the mid-2000s [16], the country's electrification rate of around 16% is half of the sub-Saharan African average. Museveni has declared widespread electrification a top priority [17]. High energy inequality and high tariffs have furthermore served to turn the energy transition in Uganda into one of the most contentious issues in the country's socio-political debate. Furthermore, Uganda's energy sector has been subject to a high level of foreign energy sector assistance [18]. These aspects are common features of several sub-Saharan African cases. The UN's Sustainable Development Goals have helped to make universal electrification a priority across many national African governments and the international development community. Seizing the moment in terms of unparalleled available international finance, most sub-Saharan African governments, much like Museveni in Uganda, have set ambitious electrification targets. Their attainability, as this paper shows for the Ugandan case, may be questionable.

This paper puts forward two main arguments. Firstly, it argues that post-truth politics are a widely deployed populist instrument in Uganda's energy debate. Similar to Donald Trump's presidency, the most prevalent misinformation type used in this populist political setting is 'bullshitting' for political gain in Frankfurt's terms. Post-truth politics in Uganda function as an instrument of a populist leader to praise his alleged success and/or camouflage his own

shortcomings while refusing to acknowledge or respect the existence of contrary facts. While populist ideologies in general have clearly shaped Museveni's approach, perhaps more fascinating is the manner in which he builds on post-truth politics to support his wider plebiscitarian narratives. Rather than exhibiting a focus on climate change and energy security as in most Western cases, high-level post-truth claims in Uganda's energy sector are salient across the electrification value chain, including the planning, generation, transmission, distribution, and pricing of electricity. Museveni's developmental self-dramatisation has been the primary legitimising force behind his political success and is so deeply enshrined in Uganda's political institutions that the absence of significant factual electrification results necessitates the usage of post-truth tactics. These have now become more salient as the government has only recently defined electrification as a top political priority[2]. Secondly, this paper argues that in contrast to the rise of Donald Trump and right-wing movements in Europe, post-truth claims in Uganda's energy sector do not appear to have managed to greatly influence public opinion. Drawing upon a previously unpublished energy household survey data, it suggests that the Ugandan public is both well-informed and overwhelmingly sceptical towards the truthfulness of governmental energy-related statements. Neither different age, gender, type of residence, educational nor income groups show statistically significant variations from this result. Hans-Georg Betz, advocating a rational voter model in his analyses of conditions favouring the success and failure of populist parties in Europe, argues that central to populist success is "whether or not a party manages to deliver politically" ([5] p.198). Our findings suggest that the public's ability to objectively verify whether or not such delivery has appeared, as in the case of providing physical infrastructure to households, has helped to identify post-truth claims. While adding the aspect of verifiability of whether or not a populist party has delivered to Betz's theory, our findings supports his basic logic. Given the energy-related grievances of the deprived Ugandan population, the government's visible failure to deliver on its promises is likely to have outweighed governmental post-truth claims for forming the respondents' opinions.

The paper is structured as follows. Following this introduction, section 2 offers a brief background of populism in sub-Saharan Africa and Uganda, while section 3 describes data and methods. The prevalence of populism in Uganda's energy sector is documented in section 4, while section 5 presents the household survey results to analyse how this has resonated with

[2] MacLean et al. (2016) show that due to high foreign influence, the energy sector used to be of comparable small importance in Uganda as the public did not attribute success or failure to governmental actions.

the public. Section 6 summaries and discusses the findings, and finally section 7 concludes the paper.

2. Background: Populism in sub-Saharan Africa and Museveni's Uganda

During the late 1970s and 1980s, a populist wave swept sub-Saharan Africa in the form of a series of military *coup d'etats*, which were often justified by their charismatic leaders on the grounds that they were necessary for purging corrupt political systems [19]. Such examples include Flight Lieutenant Jerry Rawlings' 'social revolution' in Ghana (1981-2000), or Captain Thomas Sankara's 'populist-socialist movement' in Burkina Faso (1983-1987) [20]. In other instances, African populism has been used as an ideology to instigate socio-cultural cleavages within societies, to create a rift between groups, and in the process exploit xenophobic rhetoric that plays on ethno-national sentiments. Such examples might include Idi Amin's Uganda (1971-1979), or Robert Mugabe's Zimbabwe. Although populism across Africa has assumed many different guises over the years, there are a number of elements shared by most populist movements. Notably, leaders of populist platforms tend to demonstrate a strong, charismatic leadership style, often defined by the claim that they do not originate from the existing political class [21]. Rather, they tend to adopt political strategies that condemn the existing political order as corrupt or poorly governed, calling for the restoration of 'power to the people', and frequently employing plebiscitarian approaches [22]. Some of the most successful populist leaders in Africa have used their power and influence to exaggerate national problems, blaming poor economic performance, inequality and underdevelopment on the policies of previous governments, or the ineffective and misguided advice of foreign experts [23]. More recent examples of contemporary populism in Africa can also be seen in many opposition movements, including Raila Odinga's *Orange Democratic Movement* in Kenya, Abdoulaye Wade's *Parti Democratique Senegalais* in Senegal, or Julius Malema's *Economic Freedom Front* in South Africa [24].

Yoweri Museveni's leadership in Uganda unites all of these populist elements. He initially took power in 1986, when the National Resistance Movement (NRM) swept into the country capital, Kampala, ending Uganda's five year civil war. During the conflict, Museveni's popularity increased, and he emerged as an almost mythic personality, with the reputation of a highly

effective leader. Accentuating his own peasant background and placing a 'pro people' discourse at the heart of his political approach, he presented himself as an unorthodox personality that the Ugandan people needed to trust so that the country could make a clean break from corrupt, traditional politics [25]. The establishment of Museveni's personalised power is salient when examined from an institutional point of view. Initially, he established a series of 'resistance councils', which encouraged grassroots participation and entrenched the NRM's hold on rural areas [26]. Since this time, there has been a strong populist dimension to Uganda's political institutions. His institutional approach has fittingly been described as a "quid pro quo arrangement" ([27], p.171). While new local government and legislative institutions have been created between 1986 and 1996, Museveni has simultaneously concentrated power, prompting William Muhumuza to write that "these institutions have ended up being used for propaganda purposes. They have not been enabled to perform their duties independently" ([28] p.40). In 1995, Museveni succeeded in institutionalising the personalisation of political power in Uganda, enshrining his 'no-party' model of governance in the constitution, with his own leadership as an authoritative guideline. While a ban on other political parties was initially instigated as a transitional action to modernise the country, it has proved an effective mechanism for shutting down political challengers [21].

Towards the public, Museveni has sought legitimacy through emphasising and institutionalising his own national developmental narratives. Internally, backed by a large network of informal patronage institutions, he used state money to "recruit support, reward loyalty, and buy off actual and potential opponents" ([29], p.28). The constitutional commission responsible for the 1995 amendments were almost exclusively hand-picked Museveni supporters. The commission made an effort to tour many parts of Uganda in the process of drafting the constitution, claiming to produce a version based on the people's views. However, these tours have been criticised as focusing on educating the people on the new laws and gathering popular support for the NRM, rather than actually consulting the public [28]. After international and inner-NRM criticism, the government changed the political system to a multiparty system as part of wide-reaching constitutional reforms in 2005, yet only to allow Museveni to remove term limits on the presidency at the same time. He openly bribed 213 of the 305 members of Parliament to support the term limit removals [27], an example for how far the personalisation of power and Museveni's sanctity had come.

One of Museveni's great strengths has been his ability to reach out to the common person, with promises of broader societal transformation based on modernisation and equality. In Uganda,

plans for modernisation have often been synonymous with infrastructural development. Museveni has repeatedly emphasised that a transformation of Uganda's energy sector is the main driving force behind the country's future development [17, 30, 31]. Crucially, the institutions Museveni has created act to provide political and processual legitimacy as well as credibility to his populist agenda. Ministries, the National Planning Authority and the Electrification Regulation Authority publish reports which support Museveni's promises with technocratic detail. They include detailed ramp-up plans of generation capacity, rural electrification connections or projecting future technology trends in Uganda. Yet a closer examination reveals that plans are directly informed by Museveni's populist agenda and can practically be made public only if they are being supported by the President. Institutionally, he has the power to be involved in decisions on policies and personnel. Museveni has reacted swiftly in cases where officials have not acted according to his plans. When the former Permanent Secretary of the Ministry of Energy and Mineral Development, Dr Stephen Isabalija, helped to award a multi-billion USD oil refinery contract in 2017 to a consortium of Italian and American companies instead of the Chinese Dong Song – CPECC consortium, which has close ties to the President, Museveni abruptly fired him [32]. In general, Museveni has exhibited a tendency of micro-managing the energy sector, participating in operational meetings and interfering heavily with the sector's regulatory framework [33].

Hence, portraying the energy sector as a successful case of governmental efforts has become fundamentally important for Museveni's credibility. Against this backdrop, this paper critically examines governmental claims of success along the electrification value chain, and the degree to which they have shaped, or failed to shape, Ugandan public opinion of the energy sector.

3. DATA AND METHODS

3.1 Identifying populist and post-truth claims

To explore areas of Uganda's energy sector affected by populism, this paper relies on three types of primary data. First, we conducted semi-structured interviews in Uganda in September 2017 with various different key stakeholders in Uganda's power sector. This included: Government officials from the Ministry of Energy and Mineral Development, members of the Ugandan Electricity Regulatory Authority (ERA), employees of the parastatal generation, transmission and distribution companies (UEGCL, UETCL, and UMEME, respectively), as

well as donor organisation employees from the World Bank and KfW. Second, this paper makes use of public talks and transcripts from senior government and energy company personalities, focusing on various speeches from President Yoweri Museveni. Third, the paper examines official government plans and policies such as the Uganda Vision 2040 [34], ERA's Least Cost Generation Plan 2016 – 2025 [16], as well as from official reports published by UEGCL, UETCL and UMEME.

To assess the truthfulness of particular statements and claims, the analysis in this paper draws mainly upon Ugandan data sources. While data on Uganda's power sector is broadly available, one needs to bear in mind quality issues which often arise when working with data that originates from developing countries. Where obvious inconsistencies were found, this paper uses further data from international organisations, such as the World Bank, for cross-referencing.

3.2 Assessing public opinion

3.2.1 Novel household survey data

Public opinion on energy in Uganda was captured via a previously unpublished household survey conducted in Uganda by the authors in 2017. The survey was comprised of 41 questions or statements to be rated. These related to the respondents' profile (i.e. age, gender, education level, income level, etc.), personal electricity situation (status of electrification, quality of connection, type of appliances used, satisfaction with connection status, etc.), as well as opinion on Uganda's energy situation and the government's associated role. Using five-level Likert items ("strongly agree", "agree", "neutral", "disagree", "strongly disagree"), survey respondents were asked to assess the sufficiency of Uganda's current electricity supply, the suitability of different technologies, the roles and responsibilities for energy provision, as well as the level of electricity prices. Specifically, the intelligibility of the Ugandan energy debate was examined using the following three Likert items: First, "the government has been consistent in its views on Uganda's energy future"; second, "Uganda's energy situation is handled in a transparent way"; and third "the energy debate in Uganda is usually based on facts". All questions had an additional option to allow respondents to select "don't know",

which, if selected, was counted as a missing value. Semi-structured interviews were conducted with several respondents to collect more in-depth data.[3]

The total survey sample size is 401. It is within the range of other academic household surveys conducted on energy in Africa (for instance, the sample size is 60 households in [35], 120 in [36], 200 in [37], 402 in [38], and 537 in [39]). Given Uganda's considerable sub-national electrification inequality [10], it was crucial to undertake the survey across a variety of geographic locations in a diverse range of study sites, in order to limit selection bias. Overall, the survey covered 7 of Uganda's 14 sub-regions. While the survey was mostly administered in English, it was also translated into the local Luganda, Luo, Lusoga and Runyankore languages and administered with an interpreter where necessary. As Table 1 indicates, to further achieve an adequate sample distribution, within all sub-regions, different 'settings' were targeted, including urban centres and several distinct rural villages or, in the case of Kampala, both comparably well-to-do areas and urban slums.

Table 1: Geographical distribution of household survey participants

Region	Sub-region	No. of distinct locations[a]	Sample size
Northern Uganda	Acholi	3	61
	Others[b]	-	1
Eastern Uganda	Busoga	3	44
	Teso	3	41
Central Uganda	Eastern Buganda	3	36
	Western Buganda	2	26
	Kampala	6	127
Western Uganda	Ankole	5	60
	Others[b]	-	5
Sum		**25**	**401**

[a] Indicates number of different urban and/or rural areas within each sub-region in which the survey was conducted.
[b] A total of 6 participants answered for their family home, which was located in a different sub-region than the 7 visited for this survey.

Table 2 lists descriptive respondent statistics and compares the survey sample with national Ugandan averages. While 6 of the sub-regions were selected randomly, the capital, Kampala, was deliberately chosen because of its central importance for the energy sector and political

[3] The survey raw data are available from the authors upon request.

processes in Uganda. A number of survey questions required some basic technical knowledge about energy technologies. In order to maximise the number of usable responses (i.e. no missing values or "don't know" selections), the survey was also administered to students and staff members at two Ugandan universities in Kampala. As a result, the full sample of the survey exhibits a considerably higher percentage of respondents with an above secondary school education degree than in the national average, as well as a higher urban versus rural split (see Table 2). All other cities, towns and rural villages where the survey was conducted were chosen randomly after the sub-regions had been chosen. The urban versus rural population split in each region guided how many villages vis-à-vis cities were selected. In every sub-region, at least two different locations, and in all but one case, at least 3 locations were chosen. Within these locations, households where the surveys were administered and the adult who answered the questions, were chosen randomly.

To account for this effect, as well as for other potential demographic selection biases, an additional demography-adjusted sample was created as a subset of the full sample. This adjusted sample was designed such that all Ugandan national average demographic characteristics listed in Table 2 were met within a maximum 20% tolerance while maximising the resulting sample size. This was achieved by implementing a Mixed-Integer Linear Programming (MILP) model (see Appendix A for implementation details). In terms of selection procedure, the MILP performs a random draw, i.e. the user does not influence which respondents will be chosen. The MILP identified 216 responses as the demography-adjusted sample size maximum. All statistical analyses feature both the full and the adjusted sample to ensure both a high sample size and a suitable reflection of Ugandan demographics. If the results from both cases are similar, it is not necessary to also include a sample where each observation is weighed according to the probability of being surveyed. The 216 selected observations would have a probability of close to 1 of being selected, while the remaining would have a low probability in such a sample. Therefore, it would fall in between the extreme cases of the full and the described demographically-adjusted draw from the full sample, but would feature the disadvantage of either reducing variability (if it replaces the full sample) or artificially constructing a sample with unclear choices of how to calculate the selection probability (if it replaces the demographically adjusted sample). The results are greatly similar for both samples. Hence, the result section only presents the results for the full sample. The econometric robustness tests with the adjusted sample are available in Appendix B.

Table 2: Descriptive statistics of total survey and subset sample compared to Ugandan national average

Participant characteristics	Instances	Full sample	Demography-adjusted sample[a]	Ugandan average[b]
Gender	Male [%]	54.0	50.5	49.3
	Female [%]	46.0	49.5	50.7
Age	Average[c] [yrs]	37.0	38.5	34.1
Residence	Rural [%]	61.8	82.9	75.6
Education level	No formal education [%]	12.2	13.7	11.9
	Primary school [%]	23.0	42.5	51.9
	Secondary school [%]	29.9	32.0	26.5
	Above secondary [%]	34.9	11.8	9.7
Grid connection	Yes [%]	53.4	17.8	15.5
Sample size		*401*	*216*	-

[a] The demography-adjusted sample is the result of the draw from the full sample where all participant characteristics are within 20% of the Ugandan national average while maximising the resulting sample size (see Appendix A).
[b] Ugandan average based on official Ugandan census data from 2014 [40]. Education splits were taken from the National Household Survey 2016-17 [41] due to classification categories being better aligned with the survey conducted for this paper.
[c] The average age relates to the population share aged 18 and over as this share of the population was subject to being selected as survey participants.

3.2.2 Econometric models

This paper features several ordered logistic regressions to study the profile of the public's perception towards post-truth politics in Uganda's energy debate. The models use the ordinal variable *Based-on-facts* as their dependent variable. The variable assigns a value between 1 and 5 to responses to the statement "The energy debate in Uganda is usually based on facts", a value of 1 corresponding to "strongly agree", and 5 to "strongly disagree". The models estimate associations with a set of demographic explanatory variables such as age, gender, urbanisation, education level and income. The models use robust Huber-White sandwich variance estimates. An approximate likelihood-ratio test revealed that there is no statistical evidence that the proportional-odds assumption (i.e. the equity of coefficients across categories) was violated for the logit models. To further ensure robustness, this paper furthermore estimates a probit model based on a standard normal rather than a logistic distribution function, and a heterogeneous choice formulation as an ordinal generalised linear model (OGLM) which specifies all explanatory variables as potential determinants of heteroskedasticity [42]. An alternative specification also constructs a binary variable from the ordinal *Based-on-facts* variable which is 1 if respondents disagree or strongly disagree with the associated statement.

4. POPULISM ACROSS UGANDA'S ELECTRICITY SECTOR

This section examines the truthfulness and populist character of several high-profile energy-related claims made by the Ugandan government. It provides evidence that post-truth statements and populist motives are present in all major value chain elements of Uganda's energy sector. The subsequent subsections address electricity planning, generation, transmission, distribution and pricing in turn. It should be noted that the list of populist statements pointed out below is not intended to be conclusive. It is rather meant to illustrate the pervasiveness of populism across all key areas of Uganda's energy debate.

4.1 Electricity Planning

4.1.1 Electrification promises

The Uganda Vision 2040 policy defines infrastructural targets for the next 25 years [34]. In his 2013 speech to launch Vision 2040, President Museveni repeatedly assured that the Vision 2040 will be fully implemented as the policy foundation to his long-standing national developmental narrative [17]. Despite Uganda's considerable planning capacity in the energy sector through its National Planning Authority (NPA) and ERA, the plan appears to be based on a simple clear top-down approach to target setting. The governing principle is Museveni's openly declared intention to elevate Uganda to middle-income status by 2040. Electricity generation, access and consumption targets directly follow from this vision: they are oriented at current middle income country levels, almost exactly matching current South African levels. Vision 2040 promises to increase Uganda's electrification rate to 80% by 2040, corresponding to electrifying roughly 10 million additional households. It furthermore proposes to dramatically increase the per capita electricity consumption, a measure that divides the total consumed electricity in a country by the number of its inhabitants. During the launch, Museveni noted that "Uganda's kWh per capita in 1986, was 30. It is now 150 kWh" [17]. The government aims to reach 3,668 kWh by 2040, almost exactly South Africa's current per capita consumption.

Available historic and comparative data question the attainability of these promises. To achieve this goal, Uganda would need to add close to 400,000 new connections every year until 2040. However, the country's main distributor UMEME, who controls over 97% of electricity

distribution in Uganda, only managed to add 466,000 new connections between 2006 and 2015 [16]. Only roughly 10% of these were rural connections, yet roughly 90% of the Uganda's currently unelectrified people live in rural areas. The growth rate of adding new grid and off-grid connections would have to be instantly increased by 600% and be sustained at that level for 25 years to reach the 2040 promise. The government has not offered details as to how this should be achieved, especially given the fact that new connections are subject to increasing marginal costs as their rural share is required to grow. Instead, the presence of populist narratives by the President to transform the country to a middle-income status are the likely cause of the ambitious promises.

Such populist-natured electrification promises by Museveni's government are not new. Table 3 compares rural connection promises made by the Ministry of Energy and Mineral Development in 2007 to the actual performance. After 7 years, the actual new connections amounted to only one eighth of the promised figures. In 2016, ERA itself critically analysed these gaps, admitting that the "forecast was ambitious" ([16] p. 28).

Table 3: Past governmental rural connection promises versus actual performance (source: [16])

	Ugandan government promise		**Actual performance**	
Year	Rural connections	Rural sales [GWh]	Rural connections	Rural sales [GWh]
2008	10,000	3.69	5.754	3.72
2009	54,667	20.68	5.909	6.07
2010	99,334	38.98	10.890	13.68
2011	144,000	58.90	12.734	15.36
2012	188,667	80.81	15.560	18.80
2013	233,334	102.39	22.056	25.60
2014	278,001	126.39	35.693	27.75

Regarding annual per capita consumption, official Ugandan ERA data clearly shows that, to begin with, the figure of 150 kWh quoted by Museveni is false. In 2013, Uganda consumed a total of 2119 GWh across both domestic and industrial sectors [16]. The per capita consumption was thus 56.4 kWh in 2013, much closer to the 1986 figure of 30 kWh than claimed by the President. The 2040 target of 3,668 kWh consecutively implies an increase of 6500% compared to 2013 levels. The target almost exactly matches what the middle-income country South Africa consumed per capita in 2015. Figure 1 shows that it would take a 20% per annum consumption growth sustained over 25 years for Uganda to reach South Africa's 2015 per

capita electricity consumption. However, electricity consumption in Uganda has only grown by 6.5% per year between 2010 and 2014 [16]. ERA estimates a similar per-annum growth rate of 7.5% between 2016 and 2025 [16]. If maintained, this would result in a 2040 per capita consumption similar to what Ghana consumes per capita today, equating to merely one fourteenth of the Uganda Vision 2040 target.

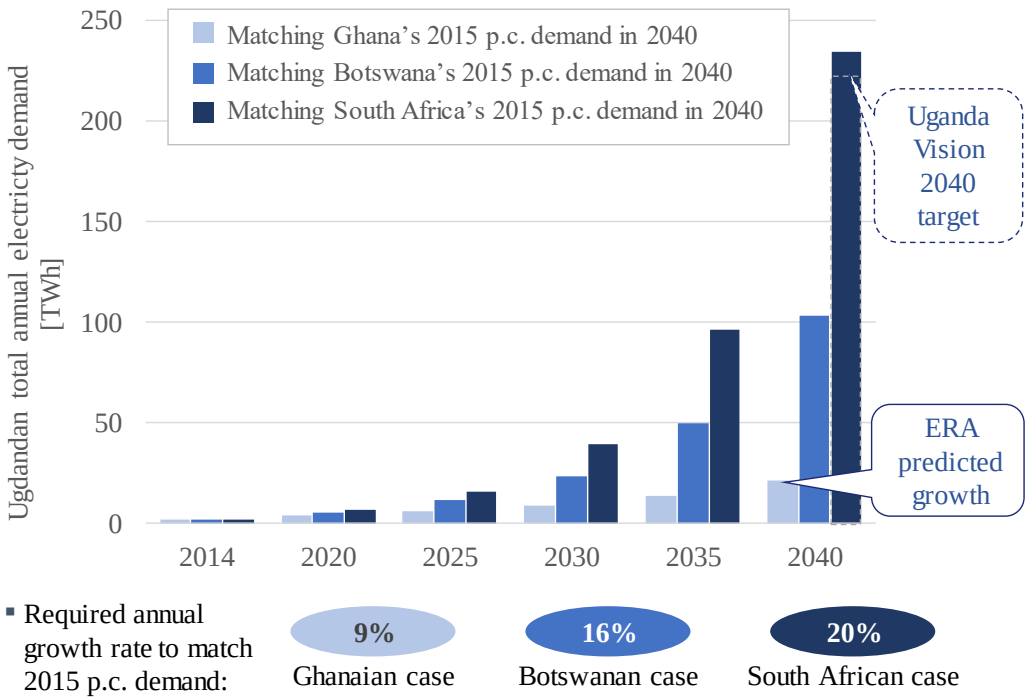

Figure 1: Ugandan demand scenarios and required growth rates for reaching the level of other African countries' 2015 per capita electricity demand in 2040

4.1.2 Planned dominant nuclear share

The Ugandan government aims to expand its installed generation capacity from the current 0.85 GW to 41.7 GW in 2040, a 4900% increase. Nuclear energy is planned to account for 24 GW (see Figure 2).

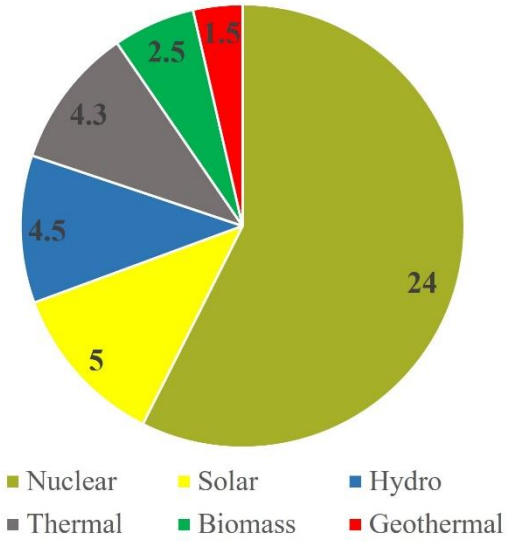

Figure 2: Uganda's targets for installed generation capacity by 2040 in GW (data source: [34])

These figures, particularly the nuclear share, appear to be highly unrealistic. The Ugandan power sector regulator, ERA, estimates that "[n]uclear energy will at the earliest be available in 2028" ([16] p.51), leaving 12 years to achieve 24 GW installed capacity. Leading industrialised countries, such as the US and France, needed more than 20 years to install their first 24 GW nuclear capacity. Achieving the 24 GW target would place Uganda, a country that ranks 101st in nominal GDP [43], as the 5th largest nuclear energy producer worldwide (behind only the US, France, China and Russia) [44]. In total, Africa currently features 1.8 GW installed nuclear capacity, all of which is in South Africa where nuclear energy has been a highly contested issue even at this comparably small magnitude. Although Museveni has claimed that Uganda's educational system is well-equipped to address future needs [31], to the best of our knowledge, there is no nuclear engineering degree on offer at any Ugandan university. The government has also not yet provided any information on how it intends to fund the significant upfront investments necessary for nuclear energy. In 2013, Museveni said that "Uganda will become a lower middle-income Country by 2017 and an upper middle-income Country by 2032" [17]. The former has not happened (Uganda ranks in the bottom 10% of GDP per capita globally), and Vision 2040 does not explain how the pressing financial, know-how, logistical, institutional, safety, waste storage and long lead time issues associated with nuclear energy in the future will be addressed. In summary, the case of planned nuclear expansion may be seen

as an example of the deeply politicised exercise of national energy planning in sub-Saharan Africa [45].

4.2 Transmission

In his 2017 State of the Nation address, Museveni emphasised the importance of expanding the transmission line network. He proclaimed that "[u]sing Uganda Government money, we have extended transmission lines to the following areas", which included 27 distinct lines such as Sironko to Nakapiripirit, Rukungiri to Kanungu, or Muhorro to Muziizi tea factory [31].

An examination of the given examples, however, reveals that none of these 27 lines are transmission lines; they are all distribution lines. While distribution lines in Uganda operate at either 33kV or 11kV, transmission lines operate at 132kV, 220kV or 400kV and cover long distances of several hundred kilometres. The government has repeatedly promised to rapidly industrialise the economy [34], the total length of 1,250 km transmission lines in a country of 270,000 km^2 falls considerably short of being able to support such a transition. To kick-start industrialisation, the Ugandan Investment Authority is currently developing four industrial parks (Namanve South, Luzira, Mukono and Iganga). Contrary to Museveni's claims, the required transmission lines are not funded by Uganda's government but by a US$85 million loan by China's EXIM bank, with Uganda committing only a minor subsequent investment via counterpart funds. No other transmission lines have been constructed in the timeframe Museveni referred to. In addition, several of the lines Museveni mentions in his speech were already listed as fully operational 2016 UMEME data [46], such as the connections from Sironko to Nakapiripirit, Rukungiri to Kanungu, or Ibanda to Kabujogera.

Figure 3 depicts the national grid in Uganda in 2016. It illustrates a stark regional bias. Significant parts of the Northern Uganda region, home to roughly a quarter of the population, is currently not served by high-voltage transmission lines and hence cannot support a modern form of industry. This inequality matches the pattern of regional poverty across the country. Over 45% of Northern Ugandans live in poverty, while only 10% do so in Central Uganda [34]. The Ugandan government asserts that "[f]or Uganda to shift from a peasantry to an industrialized and largely urban society, it must be propelled by electricity" ([34] p.73). Yet at the same time, instead of acknowledging regionally biased infrastructure provision as a systematic driver of Uganda's poverty, Museveni refuses to accept responsibility. Rather, in a telling effort of vigorously protecting his populist development narrative, he blames poverty

solely on individual laziness: “Everyone knows that the only way out of poverty for any individual or society is through hard work … Many people in Uganda behave like a foolish hired shepherd who does not pay attention to livestock under their care” [47].

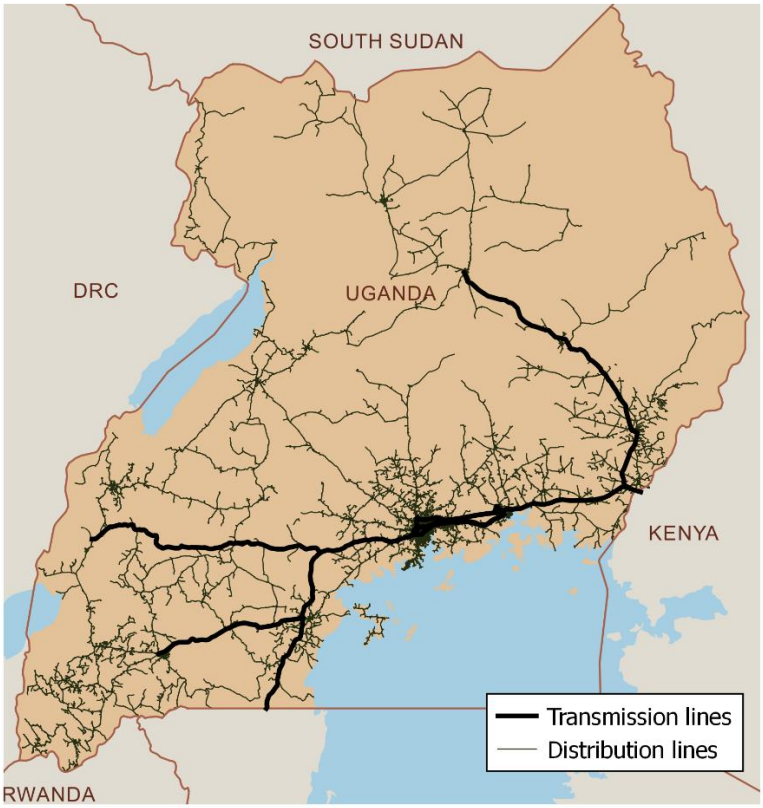

Figure 3: National grid in Uganda (data source: [46])

4.3 Distribution

4.3.1 Fake distribution

The provision of electricity by African governments has been frequently linked to securing votes [10, 48-50]. Uganda’s ruling party, Museveni’s National Resistance Movement (NRM), has similarly used electrification endowments to deprived communities for political gains. The case of Mafubira sub-county in Eastern Uganda serves as a lucid illustration. Daudi Migereko, former Minister of Energy and Mineral Development, visited Mafubira to hold an election rally for the 2011 general election. He ran as the NRM Member of Parliament candidate for Butembe County, a riding comprised of Mafubira and three other sub-counties. A day before he arrived, a number of construction trucks brought wooden poles and copper wire to construct the first distribution network in the village where he was supposed to speak. Migereko hailed the

NRM's capability of bringing electricity to Mafubira during his rally, indicating that a vote for the NRM leads to infrastructural improvements. In the 2011 elections, Migereko narrowly won the Butembe County seat, beating his rival Kiirya Grace Wanzala from the main opposition party Forum for Democratic Change (FDC) by 16,833 to 16,019 votes. Mafubira sub-county overwhelmingly voted for the NRM, awarding them 69% of the votes.[4]

During our field work in Uganda, however, several residents from Mafubira reported that a few days after the results of the 2011 election were declared, the trucks came back to Mafubira and removed the entire distribution network equipment again. The affected village in Mafubira is still not connected to the grid.

It is important to note that we did not survey a sufficient number of villages in Uganda to indicate to which extent such instances of 'fake distribution' are systematic or individual occurrences. The fact that the particular observed instance involved the former Minister of Energy and Mineral Development in Uganda only suggests the possibility of systematic top-down decisions, but does not prove them.

4.3.2 Electrification rate improvement claims

President Museveni has praised the progress of electrification in Uganda on several occasions. In June 2017, he quoted an electrification rate of 20.4% [31], lauding the progression from 4% electrification in 1986. The 20.4% figure stems from the 2014 national census conducted by the Ugandan Bureau of Statistics (UBOS) which reports grid and off-grid connection rates of 15.5% and 4.9%, respectively [40]. In September 2017, Uganda's Minister of Energy and Mineral Development, Irene Muloni, proclaimed the electrification rate to be 22% [51], a figure taken from a recent UBOS survey [41].

Testing these figures against several different data sources casts considerable doubts on their accuracy. The country's main distributor UMEME reported the number of domestic customers to be 867,671 in 2016 [52]. In addition, ERA estimates that roughly 35,000 customers are served through companies other than UMEME. The average household size is 4.7 in Uganda [40]. UBOS figures indicate a population of 36.7 million people in Uganda in 2016, while the World Bank and UN put this number at 41.5 million for the same year. Using an average of

[4] It should be noted that the later figures stem from the 2011 presidential elections which were held simultaneously with the parliamentary elections. The Ugandan Electoral Commission does not publish parliamentary election results on a sub-county, but only on a county level.

these population estimates yields a grid electrification rate of 10.8%, if all connected customers actually use electricity. If one assumes that 10% of customers do not consume electricity because they either cannot afford it or because the connection is permanently damaged, both of which constitute phenomena which we encountered during our field work, this number drops to 9.8%, significantly below the 15.5% UBOS figure. Independent data for off-grid electrification is difficult to obtain. Extrapolating figures from a Lighting Africa survey of Uganda's solar off-grid market appears to roughly support a 4.9% off-grid electrification rate [53]. The report mentions, however, that the vast majority of solar home systems sold can merely supply enough electricity to power a single light bulb, and in some cases, a radio and a mobile phone. Adding grid and off-grid electrification rates to obtain an overall rate thus obscures the different potentials of both connection types. The result of such an exercise would be an electrification rate of 15 – 16% in 2016, implying a significantly lower electrification growth than that quoted by the Ugandan government. During our semi-structured interviews, several energy sector stakeholders from UMEME and UETCL confirmed that such an estimate is more realistic than 22%. Several institutional factors, such as limited concessions aimed at distribution expansion [54], and complicated licensing requirements by ERA for private operators have contributed to continued low access rates in recent years in Uganda.

The World Bank reported Uganda's electrification rate to be 13.2% in 2010 and 13.9% in 2013 [43], while Uganda's National Planning Authority provided a figure of 11% for 2010 [34]. Given a continuation of historic growth, these figures support an estimate of 15 – 16% in 2016. With respect to the World Bank numbers, the 2014 jump to 20.4% marks a 47% increase in the electrification rate in a single year. In the same year, installed capacity increased by only 7% [16]. Furthermore, in this year, UMEME added 70,000 new customers, which, together with optimistic solar home sale assumptions, correspond to an electrification rate increase of below 10% [16]. Thus, these data call the electrification rate gain claims by the Ugandan government and UBOS surveys into question.

4.4 Generation

In July 2017, Museveni said that "the issue of the deficit of electricity has been addressed. We now have a surplus of 100 MW even at the peak hours of electricity use" [55]. In 2016, he said that in Uganda, "electricity is abundant" [30]. This sentiment is echoed throughout Uganda's energy sector. Richard Mubiru, member of the Presidential Investors' Round Table, stated in

September 2017 that "[t]here was a time when we needed power, and there was no power. I think we have moved away from that. … The fact that we have power … is a very good step"[56].

According to ERA, base case and high case peak demand of grid-connected users in Uganda in 2016 was 575 MW and 649 MW, respectively, after transmission and distribution losses [16]. Uganda's current installed usable capacity is 654 MW [16].[5] Thus, there is a considerable undersupply in Uganda for two reasons. Firstly, and most importantly, the demand figures only consider the demand of currently electrified households and businesses. Yet given Uganda's low overall electrification, the country's actual demand is significant above 575 MW but is being suppressed by the non-existence of electrification infrastructure for the vast majority of the population. Secondly, as soon as 12% of the installed capacity is unavailable during peak times, for instance due to scheduled maintenance or faults in the power plants, transmission or distribution lines, Uganda is unable to meet its base case peak demand in evening hours. High case peak demand requires the country's entire usable capacity to be run at full load at the same time. This problem is exacerbated during the dry season when low water levels reduce the usable capacity of hydro dams which make up 82% of Uganda's installed capacity. Our survey respondents report an average of 5.7 power outages a month. While some of these outages can be explained by temporary technical faults in the grid infrastructure, the regularity of these outages point towards an excess of demand over supply. Our finding is only slightly below the 6.3 power outages a month reported by the World Bank for 2013 [43], a year where ERA admitted load shedding was taking place as a result of insufficient generation [57].

Thus, the available evidence heavily challenges the claim that electricity in Uganda is abundant, a statement designed to show the progress the government and the sector have been making.

[5] The overall installed capacity was 841 MW in 2016. However, the three major hydro dams in Uganda at Kiira, Nalubaale and Bujagali are located closely together on the River Nile close to its source, Lake Victoria. Water levels between Lake Victoria and the River Nile have been found to decrease at an alarming rate when all three power plants are operated at peak capacity. Hence, a restriction on how much water could be drawn from Lake Victoria was put in place, explaining the difference between installed and usable peak capacity in Uganda. Furthermore, around 18 MW peak are exported, a number that has been rising sharply in the first half of 2017.

4.5 Pricing of electricity

The only aspect of the electricity sector where Museveni admits problems exist concerns the comparably high tariffs. One of the most contentious issues in this regard is the Bujagali hydro dam close to the source of the River Nile. The construction of the 250 MW power plant had been delayed and was significantly more expensive than originally thought, before opening in 2012. “The only problem we have are the high prices of electricity caused by the expensive money the Bujagali developers used” [30], Museveni said of the sector in 2016. Again, consistent with protecting his own stance as a developmentalist leader, he has not been accepting blame for the high tariffs but has said that the main investor, US private equity firm Blackstone Group LP, caused the high tariffs, citing 90% cheaper generation costs from Uganda’s Nalubaale dam.

Yet attributing high-tariffs to the foreign investors in Bujagali appears to be an ungrounded assertion for three reasons. Firstly, in real terms, the tariffs for both residential and industrial consumers did not markedly increase since Bujagali started to operate in 2012 [16]. This indicates that recent price increases are mainly due to inflation. Secondly, Bujagali has replaced electricity supplied from the two oil-based power plants in Uganda, Tororo and Namanve, during off-peak hours, actually cutting the per kWh cost by two-thirds, as expensive oil imports could be reduced. Thirdly, the comparison to Nalubaale is not valid, as this plant, which has been operational since 1954, is fully depreciated and therefore able to generate electricity at next to no cost.

5. POST-TRUTH POLITICS AND THE PUBLIC

Section 4 has provided evidence that populist promises and post-truth statements by Uganda’s government are present in all major electrification value chain elements. The promises appear to be unrealistic, and it is apparent that several government statements regarding the state of electrification have been embellished, are misleading, or, are simply false. The following section uses previously unpublished household survey data we collected in Uganda in 2017 (see section 3.2.1) to better understand the public’s opinion towards Uganda’s energy sector and its degree of post-truth character. The following analyses are intended to help illuminate the extent to which the government’s populist motives resonate with the public. Section 5.1 analyses the degree to which survey respondents believe that Uganda’s power sector is marred

by post-truth politics. Section 5.2 provides evidence from the survey regarding each of the populist and post-truth statements presented in section 4.

5.1 Econometric results on post-truth prevalence

Our research revealed that he majority of survey respondents believe the energy debate in Uganda is marred by post-truth statements. Only 15.8 % of the full sample, and 17.2 % of the demography-adjusted sample, either agree or strongly agree with the statement that the energy debate in Uganda is usually based on facts (Figure 4). The majority of survey respondents of both samples furthermore indicated a lack of transparency as well as inconsistent views of the government towards Uganda's energy future.

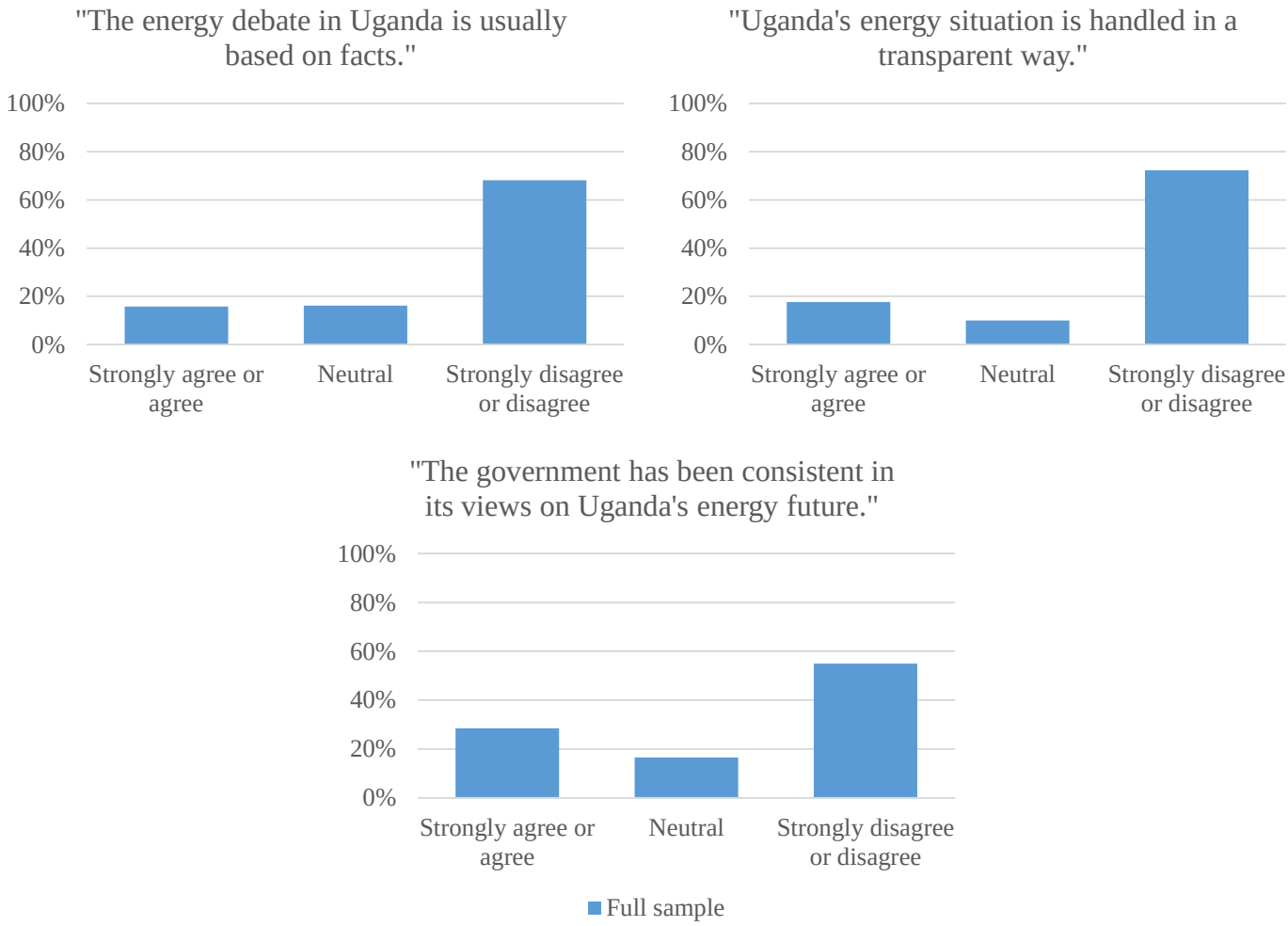

Figure 4: Survey result for prevalence of facts, transparency and consistency in Uganda's energy sector

To study the profile of respondents who are more likely than others to attest to post-truth claims, Table 4 as well as Table B1 and Table B2 in the appendix present ordered logistic regressions using the *Based-on-facts* as the dependent variable for the full and demography-adjusted sample (see section 3.2.2).

The results for both samples are similar. The main finding is that they both show no statistically significant association between dependent variable *Based-on-facts* and age, gender, urban or rural residence, educational level or income. This result is noteworthy. There is no convincing statistical evidence to suggest that older respondents, respondents in rural settings, those with lower educational qualifications, or with lower income, are more inclined to believe that

Uganda's energy debate is based on facts than their younger, urban, educated and comparably richer counterparts.

The analyses do indicate that respondents in Central Uganda (i.e. mainly in the capital Kampala) are most convinced about the post-truth nature of the energy debate. This is evident from the consistently negative and statistically significant coefficients of the three regional dummy variables which use Central Uganda as their baseline. Negative coefficients mean that respondents have assigned lower Likert scores outside of Central Uganda, i.e. have been more prone to select towards "Strongly Agree" than "Strongly Disagree" (see section 3.2.2). This result may point towards the fact that densely-populated Kampala, the political centre of Uganda, has a greater depth of available information and offers more opportunities to exchange opinions than other regions, thereby leaving political processes more exposed.

Furthermore, electrified respondents appear to believe more in the truthfulness of the energy debate. By definition, they have not been subject to broken electrification promises themselves (see section 4.3), and may thus be less sceptical. This finding provides further evidence that the verifiability of post-truth claims are an important factor for determining the degree to which such claims manage to shape public opinion. It should be noted, however, that all regional and the electrified dummy variables lose their statistical significance in at least one of the models. This warrants restraint when drawing conclusions from these associations.

Table 4: Econometric results of entire sample (Dependent variable: *Based-on-facts*[a])

	(1) Age	(2) Gender	(3) Urban	(4) Region	(5) Electr	(6) Educ	(7) Income	(8) Full
Age	0.00427							0.00981
	(0.46)							(0.84)
Male		0.168						0.220
		(0.77)						(0.95)
Urban			0.0332					-0.271
			(0.15)					(-0.71)
Western region[b]				-1.09***				-1.064**
				(-2.91)				(-2.21)
Eastern region[b]				-0.455				-1.047***
				(-1.59)				(-2.85)
Northern region[b]				-0.454*				-1.161***
				(-1.75)				(-3.02)
Electrified					-0.301			-0.726*
					(-1.37)			(-1.78)
Primary education[c]						0.0239		0.216
						(0.06)		(0.44)
Secondary education[c]						-0.197		0.0653
						(-0.48)		(0.13)
Above secondary education[c]						-0.122		0.348
						(-0.30)		(0.67)
Average income							0.0121	
							(0.04)	
High income							-0.216	
							(-0.46)	
N	297	284	298	298	294	294	190	277

Heteroskedasticity consistent *t* statistics in parentheses. Significance levels are indicated as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All models include unreported cut-points from the logit and probit models.

[a] Variable *Based-on-facts* assigns a value between 1 and 5 to responses to the statement "The energy debate in Uganda is usually based on facts", a value of 1 corresponding to "strongly agree", and 5 to "strongly disagree".

[b] The reference category is the "Central region" in Uganda.

[c] The reference category is "No formal education" .

5.2 Public opinion towards specific post-truth-affected issues

Section 4 identified seven exemplary populist assertions across electrification planning, generation, transmission, distribution and pricing. In order to underline the econometric analyses with more detail, the following sub-sections use insights from the survey and semi-structured interviews to study the public's opinion towards these assertions. The findings

suggest that the respondents have largely formed different opinions than the populist notions expressed by the government.

5.2.1 Electrification planning

The Ugandan government has a history of promising unrealistic future electricity connections (section 4.1.1). As Figure 5 shows, over 75% of the survey respondents believe that the government makes energy-related promises to gain popularity. In general, the government was attested a poor electrification performance (see also section 5.2.4).

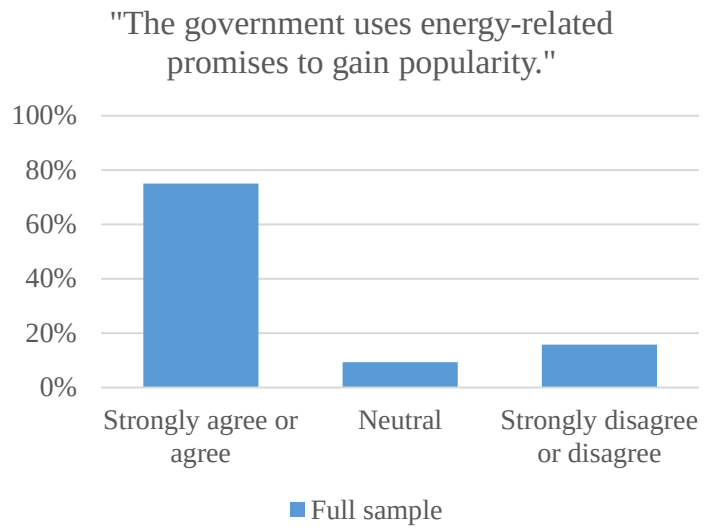

Figure 5: Survey results for motives of governmental promises

Respondents were furthermore critical of the government's plan to rely on nuclear energy for the majority of electricity generation in Uganda's future (section 4.1.2). As is evident from Figure 6, only 7% think that nuclear energy is important for Uganda's energy future, compared to an almost uniform belief that at least one renewable energy technology is important[6]. Solar energy was the most favoured technology by respondents. While Uganda is equipped with abundant solar resources, less than 1% of grid-connected electricity comes from solar energy in Uganda. The population's preference for large-scale solar combined with the government's

[6] The survey asked whether solar, wind, hydro and geothermal were important separately. For brevity, the measure for renewables was counted as selected if a respondent had selected at least one of the four renewable energy technologies.

scepticism towards meeting future targets primarily via renewables illustrates a progressive and less-constrained nature of the public which resembles the findings of Kammermann and Dermont for the Swiss public vis-à-vis the government in this special issue [58].

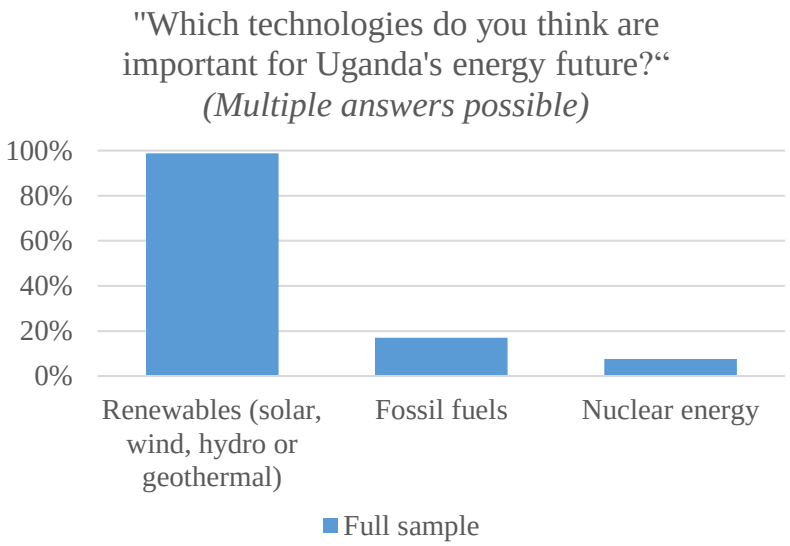

Figure 6: Survey results for opinion on nuclear energy

5.2.2 Generation

President Museveni has claimed that “electricity is abundant” in Uganda (section 4.4), citing a generation surplus. Yet the grid-connected survey respondents estimated an average of 5.7 power outages per month, lasting for an average of 6.5 hours. Indeed, 50% of those who provided a concrete time interval when the outages occur noted that they usually occurred during the evening hours, exactly the time Museveni assured to have a generation surplus. A vast majority of 78% in the full, and 83% in the demography-adjusted sample, disagreed or strongly disagreed with the statement that supply is sufficient in Uganda (Figure 7), thereby disputing Museveni’s surplus assertion. Almost all respondents have been experiencing regular power cuts ever since they have been connected, providing them with a crucial, objective measure to assess the surplus claims.

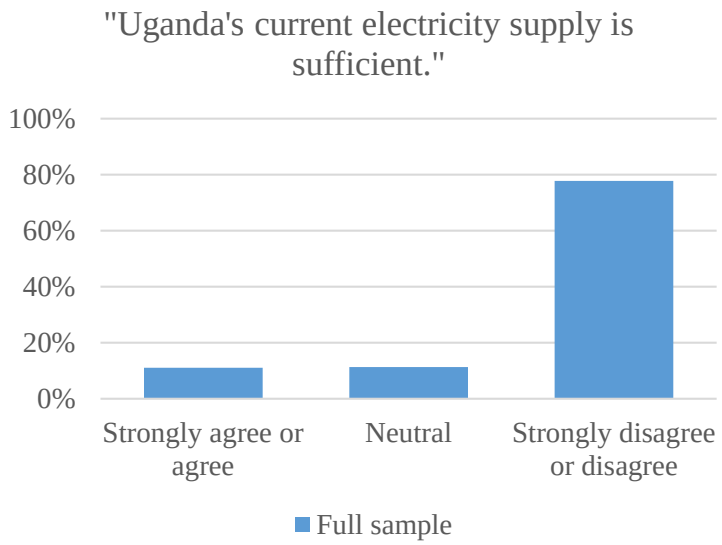

Figure 7: Survey results regarding sufficiency of electricity supply

5.2.3 Transmission

The survey did not include specific questions on transmission lines. However, our results do indicate that people who live in a region with poor transmission line infrastructure are considerably less satisfied with how much electricity they have access to. In particular, Northern Ugandans are extremely deprived of transmission infrastructure and dissatisfied with their electricity access; their per capita transmission line length is only 10% of the Central Ugandan value. As there are no major power stations in Western Uganda, almost all transmission lines in the region serve customers rather than evacuate electricity to other regions (as is the case for Eastern Uganda). This explains in part why Western Uganda is an outlier in Figure 8. Almost all respondents are furthermore aware of these systematic inequalities as they are directly and objectively observable when travelling through the country (Figure 9). If the public believes that electrification helps to alleviate poverty, they would therefore likely disagree with Museveni's attribution of poverty solely on a lack of individual efforts by poor people.

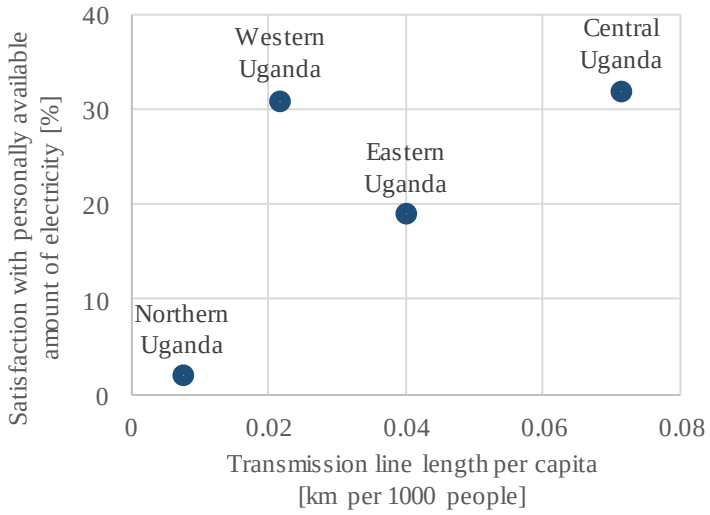

Figure 8: Personal satisfaction with available electricity versus regional transmission line length

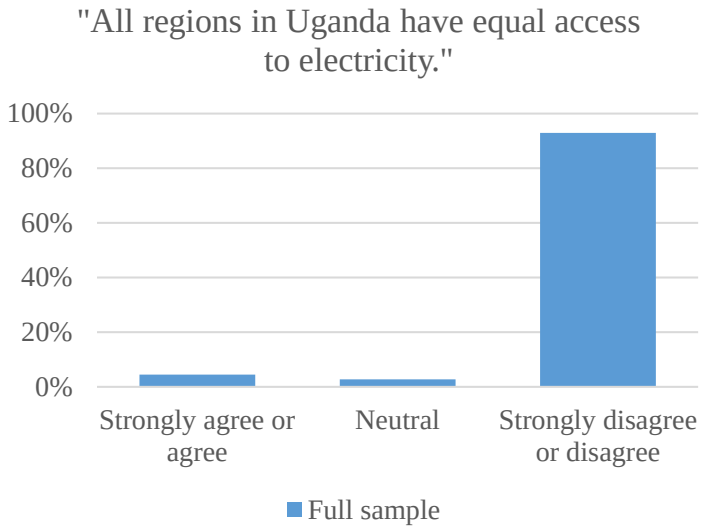

Figure 9: Survey results about equality of electricity access

5.2.4 Distribution

In terms of fake distribution (i.e. where distribution equipment is delivered to a site just to be taken down again after an election), the case of Mafubira described in section 4.3.1 is insightful for understanding the ensuing voters' behaviour. While in the 2011 election, the NRM won 69% of the vote in Mafubira and a majority from every single reported polling station, in 2016, after the fake distribution episode had occurred, the NRM lost its majority in Mafubira, claiming 46.3% of the vote versus 46.8% for the FDC. The NRM still won the Butembe

constituency, which makes the considerable vote shift in Mafubira particularly salient. While these figures only show an association, and not a causality, the affected voters we spoke to were citing this experience as a main reason for losing trust in the NRM.

Section 4.3.2 described how Ugandan politicians have hailed continuing improvements in the country's electrification rate. The majority of survey participants and, notably, 51% of those households who have been electrified in the last 10 years, disagreed with such a notion (Figure 10). The lack of electrification infrastructure has been directly visible and observable for the Ugandan public which has informed their assessment that the government has not delivered on its promises. The existence of areas which are formally electrified but where people cannot afford to use electricity, again an aspect directly and objectively observable by the public, have furthermore fuelled distrust.

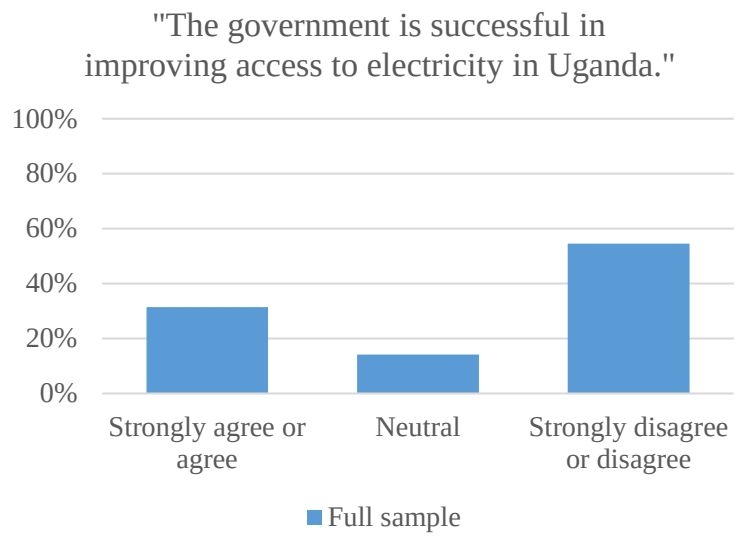

Figure 10: Survey results regarding governmental success in improving access

5.2.5 Pricing of electricity

The high price of electricity was the most frequently uttered problem in the comments field of the household survey. This is reflected in the results to a question that asked about the current price level (Figure 11). Museveni has called the high tariffs "the only problem" of Uganda's energy sector (section 4.5). Yet contrary to Museveni's explanation, the respondents do not blame foreign developers for Uganda's energy problems. Over 90% believe that Uganda faces

important energy-related problems, and of these respondents, over 70% think that the government is mainly responsible for them.

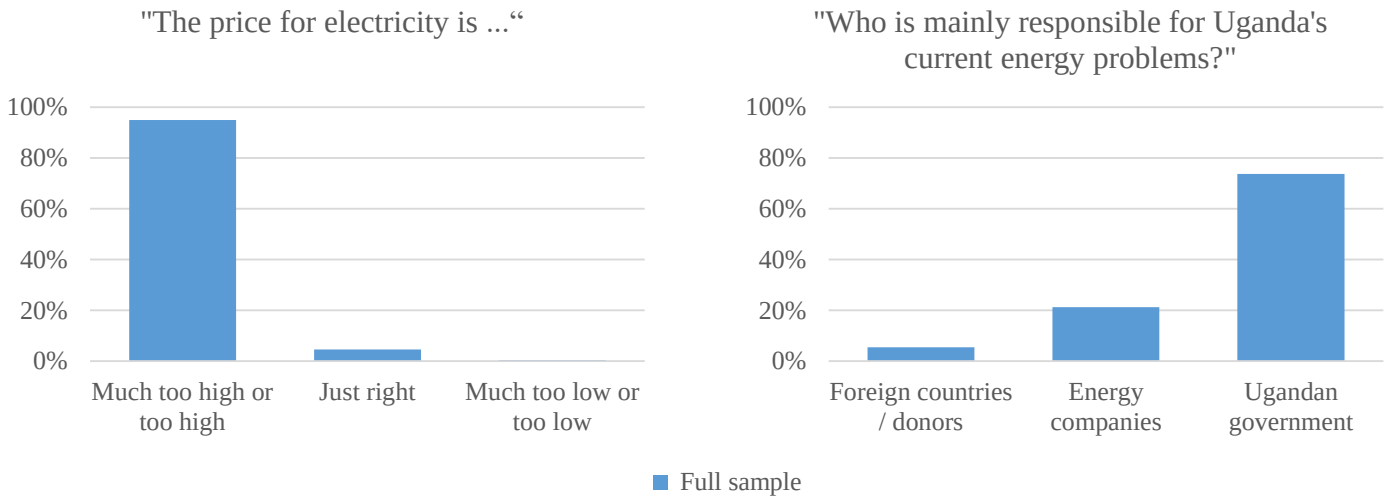

Figure 11: Survey results about price level and responsibility for Uganda's energy problems

6. SUMMARY AND DISCUSSION

Table 5 summarises the populist claims in Uganda's energy sector identified in section 4, and the related public opinion evidence generated from our household survey discussed in section 5. It suggests that while the government's use of post-truth politics as a populist instrument is abundant in the energy sector, survey respondents, irrespective of age, gender, type of residence, educational or income level, largely do not buy into populist and post-truth claims.

Table 5: Summary of the public's opinion towards identified post-truth and populist issues in Uganda's energy debate

Energy sector element	Populist issue	Evidence from Uganda household energy survey
(Across the sector)	Prevalence of post-truth politics	Only 16% believe that Uganda's energy debate is usually based on facts (section 5.1), no statistically significant evidence that age, gender, residence, education or income levels influence this assertion
Electrification planning	Populist electrification promises (section 4.1.1)	Over 75% think that the government makes energy-related promises to gain popularity (section 5.2.1)
	Planned dominant nuclear share (section 4.1.2)	Only 6% want nuclear energy to be the focus for a sustainable energy future in Uganda (section 5.2.1)
Generation	Generation surplus claim (section 4.4)	Over 75% do not rate the current electricity supply as sufficient (section 5.2.2)
Transmission	Transmission expansion claim (section 4.2)	Northern Uganda's per capita transmission line length is only 10% of Central Uganda, and respondents from Northern Uganda are least satisfied with their electrification status (section 5.2.3). Ugandans are aware of grave sub-national electrification inequalities.
Distribution	Fake distribution (section 4.3.1)	After an episode of fake distribution, the NRM lost its majority in Mafubira sub-county (section 5.2.4)
	Electrification rate improvement claim (section 4.3.2)	Only 30% believe that the government is successful in improving electricity access (section 5.2.4)
Pricing	Blaming foreign developers for high tariffs (section 4.5)	Over 70% see the government as mainly responsible for Uganda's energy-related problems (section 5.2.5)

In line with the disconnect between governmental discourse and public response, 78% of the survey respondents feel that their energy-related concerns are not well-represented in Uganda. One common reaction appears to be that rather than waiting on the government to provide electrification, people intend to take matters into their own hands. A noteworthy 29% believe that the Ugandan people themselves are responsible for creating a better energy future for Uganda. This finding is in line with MacLean et al.'s (2016) research on Uganda's energy sector, which argues that public expectations towards electricity provision by the government are relatively small, a fact which they explain is due to the historically limited role of the Ugandan state in electricity provision [18]. It furthermore resonates with the frustration with elite capture of political processes and desire of energy transition ownership by the public identified by MacArthur and Matthewman in Aotearoa New Zealand in this special issue [59]. Hence, several comments focused on expanding decentralised connections independent of the national grid. This is manifested in both widespread awareness and growing sales of off-grid solar home systems [53].

When asked what needed to be done to ensure a sustainable energy future, the top-three answers were to increase access to electricity, to improve its affordability and to improve its reliability (Figure 12). More than half of the respondents used the space provided in the survey to leave a comment, mostly regarding their personal grievances. While the government has long claimed to prioritise access and reliability, the public appears to continue to see them as pressing issues which demand actual, and not post-factual performance.

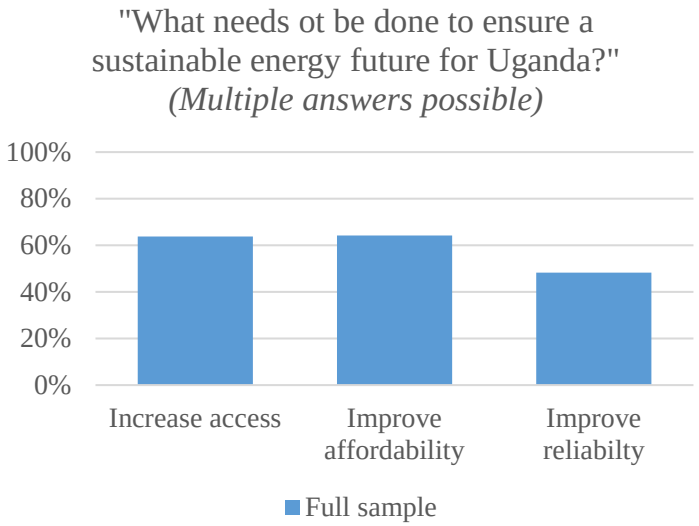

Figure 12: Survey results of future required measures for Uganda's energy future

Crucially, the low level of trust in the energy realm evident in the results in section 5 are in stark contrast to general trust levels in political institutions in Uganda. In the most recent relevant Afrobarometer survey on public opinion about trust in politics, an overwhelming majority of Ugandan respondents (79%) said that they trusted President Museveni [60]. This number is both the highest for any political institution the Afrobarometer survey included, and has further increased from their reported value in 2012. No political institution received trust ratings of below 53%. By contrast, the results presented in this paper suggest that less than 20% think that the energy debate is usually based on facts or that the sector is transparent, while over 75% believe that the government uses energy-related promises to gain popularity. As Museveni's populist tactics are salient in most areas of his political activity (section 2), energy is thus a crucial vehicle to analyse populist and post-truth claims in Uganda. We suggest that the verifiability of post-truth claims is of central importance to public opinion about them. Whereas more general, developmental claims, institutional improvements or achievements in

health care and education quality may be difficult to assess for the public, they are able to readily observe their own and their neighbours' electrification status, and are thus presented with an objective measure against which they can value political promises. Our finding that electrified respondents appear to believe more in the truthfulness of the energy debate supports this argument (section 5.1). These respondents have not been as easily able to identify post-truth connection claims, and may thus be less sceptical.

7. CONCLUSION

This paper has analysed the prevalence of populism and post-truth politics in Uganda's energy sector, as well as the degree to which populist sentiments have managed to resonate with the public. It has suggested that populism, a common phenomenon in Ugandan politics during Museveni's rule, is similarly salient in governmental attempts to shape the national energy debate. Post-truth claims have been shown to be deployed by high-level officials in the planning, generation, transmission, distribution and pricing of electricity in Uganda. In all cases, the government attempts to present its electrification service deliverance as considerably more effective and encompassing than it actually is. This finding supports the existence of a strong link between populism in general and post-truth politics. In the absence of factual energy access achievements, the Ugandan government, pressured by the growing political importance of electrification, has resorted to post-truth claims in an effort to support and protect the populist developmental narratives which have defined Museveni's rule. Museveni's personalisation of power, which is deeply rooted in Uganda's political institutions, has greatly aided the spread of post-truth politics. Specifically, this paper suggests that in a populist setting, McCright and Dunlap's BS category is the most prevalent misinformation type: post-truth statements by the populist Ugandan government have been mostly addressed at the public, and have been informed by a constructivist, agnostic attitude towards truth. In Frankfurt's terms, the examined statements suggest that the goal of persuading the public has been much more important than whether a certain statement was true or false. While Museveni's motivations and compulsions differ significantly from Western cases, this logic of using post-truth statements transcends the different political motivations and socio-cultural histories of populist leaders. It is greatly similar to one which has been argued to inform US president Donald Trump and several recent right-wing movements in Europe.

Post-truth politics has been a highly successful political strategy in recent years, as indicated by rising right-wing vote shares in Europe, the Brexit referendum and the election of Donald Trump. This paper, however, suggests that the success of post-truth politics may depend on its topic. In Uganda, the primary household survey data suggest that deceiving the public has largely failed where post-truth claims are related to electricity access, a good which is directly physically and objectively verifiable by the public. Over 80% of the respondents do not think that the energy debate is usually based on facts. Neither differences in age, gender, urban versus rural residence, education nor income level make respondents statistically significantly more or less likely to believe in the truthfulness of Uganda's energy debate. We find some evidence that electrified households are more likely to think that there are no significant post-truth politics at play, suggesting that it makes a difference whether or not the violation of the electrification promise is directly observable. A considerable majority of the sample appears to be unconvinced by post-factual governmental claims of noticeable generation or distribution improvements, and believes that the government makes electrification promises to gain political popularity. Crucially, these findings divert significantly from general trust levels that Ugandan's report towards their political institutions and Museveni: specifically, 79% of Afrobarometer respondents in 2015 said that they trusted the president, and no political institution featured trust levels below 53% [60].

The Ugandan case furthermore showcases that mounting pressure to deliver on promises can drive politicians to spread misinformation rather than accept the failure of previous efforts. Post-truth strategies in Uganda's energy sector appear to have increased in recent years, coinciding with the growing political importance of electrification success in light of the global focus on alleviating energy poverty through the UN's SDGs. Given the well-informed status of the public and the likely rising international pressures in the near future, the Ugandan government is more than ever forced to deliver actual improvements on the ground. Post-truth strategies are likely to continue if the government is unable to achieve such gains. The Ugandan public, as well as the international developmental community active in Uganda, thus need to treat Ugandan energy sector claims with caution and seek independent verification.

It is noteworthy that in the face of governmental *de facto* negligence of rural electrification, a widespread awareness and rapidly growing sales of independent off-grid electrification systems have occurred in Uganda. Ultimately, more research is needed to study the links between this rise of off-grid electrification systems and the public sector's inability to provide electricity in Uganda.

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APPENDIX A: MILP MODEL TO FIND OPTIMAL DEMOGRAPHY-ADJUSTED SAMPLE

An MILP optimisation model was designed and applied to the total survey sample. The model maximises the effective sample size for which the Ugandan national average gender, residence type, grid-connection and education level shares are met within a pre-specified deviation tolerance. The resulting sample will be called "demography-adjusted sample".

Let R denote the set of all $r = 1, \dots, \bar{r}$ responses. The decision variable is a binary variable $select_r$, equal to 1 if response r is selected as part of the demography-adjusted sample, and 0 otherwise. The objective function maximises the sum of selected responses (A.1).

$$\max \sum_{r \in R} select_r \tag{A.1}$$

Constraints sre imposed on the model to meet the demographic requirements:

$$\sum_{r \in R} select_r \cdot urban_r \leq urbanUg \cdot (1 + allowedDev) \cdot \sum_{r \in R} select_r \cdot urban_r \tag{A.2}$$

$$\sum_{r \in R} select_r \cdot urban_r \geq urbanUg \cdot (1 - allowedDev) \cdot \sum_{r \in R} select_r \cdot urban_r \tag{A.3}$$

$$\sum_{r \in R} select_r \cdot male_r \leq maleUg \cdot (1 + allowedDev) \cdot \sum_{r \in R} select_r \cdot urban_r \tag{A.4}$$

$$\sum_{r \in R} select_r \cdot male_r \geq maleUg \cdot (1 - allowedDev) \cdot \sum_{r \in R} select_r \cdot urban_r \tag{A.5}$$

$$\sum_{r \in R} select_r \cdot electr_r \leq electrUg \cdot (1 + allowedDev) \cdot \sum_{r \in R} select_r \cdot urban_r \tag{A.6}$$

$$\sum_{r \in R} select_r \cdot electr_r \geq electrUg \cdot (1 - allowedDev) \cdot \sum_{r \in R} select_r \cdot urban_r \tag{A.7}$$

$$\sum_{r \in R} select_r \cdot noEduc_r \leq noEducUg \cdot (1 + allowedDev) \cdot \sum_{r \in R} select_r \cdot noEduc_r \tag{A.8}$$

$$\sum_{r \in R} select_r \cdot noEduc_r \geq noEducUg \cdot (1 - allowedDev) \cdot \sum_{r \in R} select_r \cdot noEduc_r \tag{A.9}$$

$$\sum_{r \in R} select_r \cdot prim_r \leq primUg \cdot (1 + allowedDev) \cdot \sum_{r \in R} select_r \cdot prim_r \quad \text{(A.10)}$$

$$\sum_{r \in R} select_r \cdot prim_r \geq primUg \cdot (1 - allowedDev) \cdot \sum_{r \in R} select_r \cdot prim_r \quad \text{(A.11)}$$

$$\sum_{r \in R} select_r \cdot second_r \leq secondUg \cdot (1 + allowedDev) \cdot \sum_{r \in R} select_r \cdot second_r \quad \text{(A.12)}$$

$$\sum_{r \in R} select_r \cdot second_r \geq secondUg \cdot (1 - allowedDev) \cdot \sum_{r \in R} select_r \cdot second_r \quad \text{(A.13)}$$

$$\sum_{r \in R} select_r \cdot abSec_r \leq abSecUg \cdot (1 + allowedDev) \cdot \sum_{r \in R} select_r \cdot abSec_r \quad \text{(A.14)}$$

$$\sum_{r \in R} select_r \cdot abSec_r \geq abSecUg \cdot (1 - allowedDev) \cdot \sum_{r \in R} select_r \cdot abSec_r \quad \text{(A.15)}$$

Parameters $urban_r, male_r, elect_r, noEduc_r, prim_r, second_r$ and $abSec_r$ are 1 if respondent r lives in an urban setting, is male, has a grid connection, has no formal education, has at most primary education, has at most secondary education, and has an education above secondary level, respectively, and 0 otherwise. They were recoded as part of the survey. Analogously, parameters $urbanUg, maleUg, electrUg, noEducUg, primUg, secondUg$ and $abSecUg$ denote the national average level of the shares of urbanised, male, grid-electrified, non-educated, primary school educated, secondary school educated and above secondary school educated people in Uganda, respectively. These values are available from Table 2. Finally, parameter $allowedDev$ denotes the allowed deviation of a given demographic item from Uganda's national average. For the purpose of this study, it was set to 20%.

Constraints (A.2) and (A.3) impose an upper and a lower bound on the allowed urban percentage of respondents in the demography-adjusted sample. In the same way, constraints (A.4) and (A.5) impose an upper and a lower bound on the allowed male share of respondents, while constraints (A.6) and (A.7) implement these bounds for the share of grid-electrified people. The different education level shares are restricted to within the allowed deviation of the country means through the remaining constraints (A.8) – (A.15).

Applying the MILP (A.1) – (A.15) to the full survey sample size of $\bar{r} = 401$ responses yields a maximum number of 216 responses for which the demographic constraints are satisfied. The resulting demographic profile of this adjusted sample is available in Table 2.

APPENDIX B: ECONOMETRIC ROBUSTNESS TESTS

Table B1: Robustness tests of entire sample (Dependent variable: *Based-on-facts*[a])

	(9) Probit	(10) OGLM	(11) Binary
Age	0.00531	0.00992	0.00519
	(0.80)	(0.67)	(0.38)
Male	0.140	0.279	-0.316
	(1.05)	(0.93)	(-1.16)
Urban	-0.179	-0.519	-0.319
	(-0.80)	(-1.08)	(-0.80)
Western region[b]	-0.622**	-1.275	-0.638*
	(-2.33)	(-1.56)	(-1.71)
Eastern region[b]	-0.611***	-1.210*	-1.210***
	(-2.82)	(-1.81)	(-3.09)
Northern region[b]	-0.735***	-1.244*	-0.887*
	(-3.17)	(-1.81)	(-1.68)
Electrified	-0.412*	-0.552	-0.998**
	(-1.81)	(-1.13)	(-2.40)
Primary education[c]	0.186	0.102	0.142
	(0.65)	(0.17)	(0.25)
Secondary education[c]	0.0883	-0.0691	-0.0495
	(0.31)	(-0.13)	(-0.09)
Above secondary education[c]	0.283	0.249	-0.229
	(0.95)	(0.41)	(-0.37)
Average income			
High income			
N	277	277	277

Heteroskedasticity consistent *t* statistics in parentheses. Significance levels are indicated as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All models include unreported cut-points from the logit and probit models.

[a] Variable *Based-on-facts* assigns a value between 1 and 5 to responses to the statement "The energy debate in Uganda is usually based on facts", a value of 1 corresponding to "strongly agree", and 5 to "strongly disagree".

[b] The reference category is the "Central region" in Uganda.

[c] The reference category is "No formal education" .

Table B2: Robustness tests of demography-adjusted sample (Dependent variable: *Based-on-facts*[a])

	(12) Age	(13) Gender	(14) Urban	(15) Region	(16) Electr	(17) Educ	(18) Income	(19) Full	(20) Probit	(21) OGLM[d]	(22) Binary
Age	0.0169							0.0234	0.0144	0.00714	0.0159
	(1.28)							(1.46)	(1.63)	(0.47)	(0.85)
Male		-0.312						0.155	0.139	-0.138	0.116
		(-0.92)						(0.41)	(0.65)	(-0.42)	(0.26)
Urban			-0.119					0.884	0.484	0.908	-0.161
			(-0.26)					(0.98)	(1.00)	(1.32)	(-0.17)
Western region[b]				-0.396				0.700	0.378		0.883
				(-0.68)				(0.87)	(0.85)		(1.12)
Eastern region[b]				-0.596				-1.127**	-0.712***		-1.131*
				(-1.43)				(-2.44)	(-2.76)		(-1.95)
Northern region[b]				-0.586				-1.257**	-0.817***		-1.077*
				(-1.39)				(-2.44)	(-2.83)		(-1.66)
Electrified					-0.612			-2.190**	-1.237**	-1.044	-1.858**
					(-1.57)			(-2.33)	(-2.56)	(-1.48)	(-2.05)
Primary education[c]						-0.251		0.194	0.126	0.0781	0.0282
						(-0.50)		(0.26)	(0.32)	(0.16)	(0.03)
Secondary education[c]						-0.686		-0.314	-0.180	-0.359	-0.883
						(-1.36)		(-0.42)	(-0.45)	(-0.52)	(-1.04)
Above secondary education[c]						-1.015*		-0.337	-0.132	-0.584	-0.711
						(-1.72)		(-0.37)	(-0.27)	(-0.76)	(-0.65)
Average income							0.152				
							(0.29)				
High income							-1.053				
							(-1.03)				
N	145	134	145	145	142	145	100	132	132	145	

Heteroskedasticity consistent *t* statistics in parentheses. Significance levels are indicated as follows: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.All models include unreported cut-points from the logit and probit models.

[a] Variable *Based-on-facts* assigns a value between 1 and 5 to responses to the statement "The energy debate in Uganda is usually based on facts", a value of 1 corresponding to "strongly agree", and 5 to "strongly disagree".

[b] The reference category is the "Central region" in Uganda.

[c] The reference category is "No formal education" .

[d] The OGLM model did not converge when dummy variables for regions where included for the demography-adjusted sample. Hence, an OGLM model is reported which omits these variables.

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